

What is claimed:

## 1. A joint comprising:

5 a pair of thermoplastic pipes, each of the pipes having an end margin terminating at a pipe end, the end margin of each of the pipes having radially spaced annular first and second walls separated by a void, the first wall of each of the pipes being one of inner and outer walls, the second wall of each of the pipes being the other of the inner and outer walls; and

10 an annular coupler having axially opposite end portions, one of the axial end portions of the coupler being positioned between the inner and outer walls of one of the pipes and the other of the axial end portions of the coupler being positioned between the inner and outer walls of the other of the pipes, the coupler engaging the first walls of the pipes  
15 via an annular interference fit, the coupler being at least partially formed of thermoplastic material and at least one of the axial end portions of the coupler being heat-fused to the end margin of at least one of the pipes.

2. The joint of claim 1, wherein the coupler is dimensioned such that each of the axial end portions of the coupler is radially spaced from the second wall of the respective pipe.

3. The joint of claim 2, wherein the first wall of each of the pipes is the inner wall of the respective pipe and the second wall of each of the pipes is the outer wall of the respective pipe.

4. The joint of claim 1, wherein the coupler has an annular groove formed therein, the joint further comprising an electrical resistance heating element positioned at least partially in the groove of the coupler, at least one of the

- 5 axial end portions of the coupler being heat-fused to the end margin of at least one of the pipes via the electrical resistance heating element.

5. The joint of claim 4, wherein the annular groove of the coupler is arcuate in axial cross-sectional shape and the electrical resistance heating element is a rope-shaped thermoplastic encased wire.

6. The joint of claim 5, wherein the groove winds circumferentially into one of the axial end portions of the coupler and overlaps itself in an immediately adjacent manner, the groove extending to the other of the axial end portions of the coupler where the groove winds circumferentially into the other of the axial end portions of the coupler and overlaps itself in an immediately adjacent manner, the electrical resistance heating element being the sole electrical resistance heating element of the joint and the end margin of each of the pipes being fused to the coupler via the electrical resistance element.
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7. The joint of claim 1, wherein each of the axial end portions of the coupler tapers radially in a manner such that the first walls of the pipes are radially deflected as a result of the engagement of the coupler therewith.

8. The joint of claim 1, wherein the coupler is heat-fused directly to the first walls of the pipes.

9. The joint of claim 1, wherein the coupler is heat-fused to the end margins of the pipes circumferentially about the coupler to provide an annular seal between the coupler and the end margins.

10. A joint comprising:

a pair of thermoplastic pipes, each of the pipes having an end margin terminating at a pipe end, the end margin of each of the pipes having radially spaced annular first and second walls separated by a void, the first wall of each of the pipes being one of inner and outer walls, the second wall of each of the pipes being the other of the inner and outer walls; and

- 10 an annular coupler having axially opposite end portions, one of the axial end portions of the coupler being positioned circumjacent the first wall of one of the pipes and the other of the axial end portions of the coupler being positioned circumjacent the first wall of the other of the pipes, the coupler engaging the first walls of the pipes via an
- 15 interference fit in a manner such that the first wall of the end margin of each of the pipes radially deflects toward the second wall of the end margin of the respective pipe, the radial deflection being greatest at the end of the respective pipe and decreasing with distance from the end of the
- 20 respective pipe, the coupler being at least partially formed of thermoplastic material and at least one of the axial end portions of the coupler being heat-fused to the end margin of at least one of the pipes.

11. The joint of claim 10, wherein the first wall of each of the pipes is the outer wall of the respective pipe and the second wall of each of the pipes is the inner wall of the respective pipe.

12. A method of joining thermoplastic pipes, the method comprising:

- 5 providing a pair of thermoplastic pipes, each of the pipes having an end margin terminating at a pipe end, the end margin of each of the pipes having radially spaced annular first and second walls separated by a void, the first wall of each of the pipes being one of inner and outer walls, the



- 5    respective pipe when the respective axial end portion of the  
coupler is inserted between the inner and outer walls of the  
respective pipe.

14. The method of claim 13, wherein the first wall of  
each of the pipes is the inner wall of the respective  
pipe and the second wall of each of the pipes is the  
outer wall of the respective pipe.

15. The method of claim 14, wherein the step of  
providing a coupler comprises providing the coupler with an  
annular groove formed therein, the at least one electrical  
resistance heating element of the coupler being substantially  
5    positioned within the groove of the coupler.

16. The method of claim 15, wherein the annular groove  
of the coupler is arcuate in axial cross-sectional shape, the  
at least one electrical resistance heating element of the  
coupler being at least one rope-shaped, thermoplastic encased  
5    wire that is at least partially positioned within the groove  
of the coupler.

17. The method of claim 16, wherein the annular groove  
of the coupler winds annularly into one of the axial end  
portions of the coupler and overlaps itself in an immediately  
adjacent manner, the groove extending to the other of the  
5    axial end portions of the coupler where the groove winds  
annularly into the other of the axial end portions of the  
coupler and overlaps itself in an immediately adjacent manner.

18. The method of claim 12, wherein the step of  
providing a coupler comprises dimensioning each of the axial  
end portions of the coupler such that each of the axial end  
portions of the coupler tapers in radial dimension in a manner  
5    such that the radial deflection of the first wall of the end

margin of each of the pipes is greatest at the respective pipe end and decreases with distance from the respective pipe end when the axial end portion of the coupler is inserted between the inner and outer walls of the respective pipe.

19. The method of claim 12, wherein the step of providing a coupler comprises providing the coupler with solely one electrical resistance heating element and wherein the step of passing the electrical current through the  
5 electrical resistance heating element fuses the coupler directly to the first wall of the end margin of each of the pipes.

20. The method of claim 12, wherein the pair of thermoplastic pipes provided are helical-rib profile wall thermoplastic pipes, the end margin of each of the pipes having at least a portion of helical rib removed to form the  
5 void between the inner and outer walls of the end margin of each of the pipes.

21. The method of claim 12, wherein the pair of thermoplastic pipes provided are corrugated profile wall thermoplastic pipes.